

## **Folding Lamp Rod and Junction Box Structure for Lamps**

### **BACKGROUND OF THE INVENTION**

#### **1) FIELD OF THE INVENTION**

The invention herein relates to lighting fixtures, specifically a folding lamp  
5 rod and junction box structure for lamps in which a junction box and the lamp rods  
are hinged together. Said lamp rod has a spring element situated at an appropriate  
area and, furthermore, the vertex portion of the spring element protrudes slightly to  
the circumferential edge. When the lamp rod joint section is conjoined to the  
junction box, said spring element vertex portion engages the lateral edge of the  
10 junction box portal, thereby securing the lamp rod onto the junction box portal. As  
such, the lamp rod and junction box angle can be appropriately adjusted into a  
parallel arrangement to thereby reduce the space occupied by the lamp rods and the  
junction box when they are shipped.

#### **2) DESCRIPTION OF THE PRIOR ART**

15 Lamps now in the highest demand are models of reduced dimensions that  
have lower shipping costs and, furthermore, provide for user safety and convenient  
assembly, with such features indispensable for raising market competitiveness.  
However, in order to prevent electrocution hazards, conventional products are

typically delivered from the manufacturer with the light bulb sockets on the lamp rods pre-wired in advance, which significantly enlarges packaging dimensions and increases shipping costs. Furthermore, during user assembly and installation, since the light bulb sockets and the junction box are already wired, separation is not possible. As the light bulb sockets and the junction box are in a permanent arrangement such that the angle between the light bulb sockets and the junction box cannot be further adjusted, this also results in higher shipping expenditures.

To enable the examination committee a further understanding of the structure, features, capabilities, and practical objectives of the folding lamp rod and junction box structure for lamps herein, the brief description of the drawings below is followed by the detailed description of the invention herein.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is an exploded drawing of the invention herein.

Figure 2 is an isometric drawing of the invention herein.

15 Figure 2a is cross-sectional drawing of the invention herein.

Figure 3 is an isometric drawing of the lamp rod and the junction box in the inserted state.

Figure 4 is an exploded drawing of another embodiment of the invention herein.

Figure 5 is an orthographic drawing of invention herein in the unfolded and the folded state.

Figure 6A is an exploded drawing of the third embodiment of the invention herein.

5        Figure 6B is an isometric drawing of the third embodiment of the invention herein.

Figure 7 is an orthographic drawing of another embodiment of the invention herein in the unfolded and the folded state.

Figure 8 is an isometric drawing of the ceiling lamp embodiment of the  
10    invention herein.

## **DETAILED DESCRIPTION OF THE INVENTION**

Referring to FIG. 1 and FIG. 2, the structural arrangement of the invention herein, the present invention is comprised of a swivel block 2 movably disposed in a portal 11 in the side of a junction box 1 and a lamp rod 3 fastened to the swivel  
15    block 2, wherein:

Said junction box 1 has a plurality of portals 11 appropriately arrayed along the plane of its circumference and, furthermore, a pivot hole 12 is formed in the top surface at the lateral edge of each portal 12 in the junction box 1 to provide for movably locating a swivel block 2; the thickness along the peripheral edge H of

each junction box 1 portal 11 is contoured inward a certain degree and the circumferential surface 21 of the swivel block 2 is checked against the junction box 1 peripheral edge H, with the circumferential surface 21 of the swivel block 2 and the junction box 1 having the same degree of curvature.

5            Said swivel block 2 circumferential surface 21 and the junction box 1 circumferential edge are congruent circle segments and, furthermore, a joint section 22 is contoured over the side of the swivel block 2 such that it extends into the junction box 1, and said joint section 22 is aligned with the junction box 1 pivot hole 12 and movably positioned thereon by an inserted pintle P; a stepped surface  
10    23 is formed such it recedes towards the inner edge of the swivel block 2 circumferential surface 21 and, furthermore, a clearance hole 24 is disposed in the stepped surface 23 near the circumferential surface 21; a main hole 25 is formed in the center of the swivel block 2 and, furthermore, the main hole 25 accommodates the insertion of a threaded stud 26; one end of the threaded stud 26 is fastened to a  
15    threaded hole 31 on the lamp rod 3 and the opposite end is inserted through the swivel block 2 main hole 25 and a prepositioned lock ring 4, following which a nut 27 is installed onto the threaded stud 26 to fasten the lock ring 4 into position on the side of the swivel block 2.

             Said lock ring 4 has a laterally projecting, <-shaped spring element 41 and,  
20    furthermore, the free end 411 of said spring element 41 extends into the swivel

block 2 clearance hole 24, enabling the vertex portion 412 to protrude slightly to the side of the swivel block 2 circumferential surface 21 such that when the swivel block 2 joint section 22 is conjoined to the junction box 1, said spring element 41 vertex portion 412 engages the lateral edge of the junction box 1 portal 11, thereby  
5 securing the swivel block 2 onto the junction box 1 portal 11.

Referring to FIG. 4 and FIG. 5, the drawings of another embodiment of the invention herein, said junction box 1 has a hinge mount 13 projecting laterally from the portal 11 and, furthermore, the lamp rod 3A includes a hinge tab 32 that enters the hinge mount 13, a pintle P is inserted downward through the hinge tab  
10 32 to position the hinge tab 32 onto the hinge mount 13; a <-shaped spring element 33 is situated in the proximal extremity of the lamp rod 3 and, furthermore, the vertex portion 331 of the <-shaped spring element 33 protrudes slightly to the circumferential edge 30 such that when the joint section R1 is conjoined to the junction box 1, said spring element 33 vertex portion 331 engages the lateral edge  
15 of the junction box 1 portal 11, thereby securing the lamp rod 3A onto the junction box 1 portal 11.

Referring to FIG. 6 and FIG. 7, the drawings of the third embodiment of the invention herein, said junction box 1 has a pivot hole 12 disposed in its top surface at the side of the portal 11 that provides for movably locating the lamp rod 3A and,  
20 furthermore, the lamp rod 3A includes an arcuate hinge tab 34 emerging from its

extreme outer edge such that said hinge tab 34 is articulated into the junction box 1 pivot hole 12; a joint section 341 is aligned with the pivot hole 12 and, furthermore, a pintle P is inserted sequentially through the pivot hole 12 and the lamp rod 3A joint section 341 and the lamp rod 3A located onto a hinge mount 13; 5 a <-shaped spring element 33 is situated in the proximal extremity of the lamp rod 3A and, furthermore, the vertex portion 331 of the <-shaped spring element 33 protrudes slightly to the lamp rod 3A circumferential edge 30 such that when the joint section R2 is conjoined to the junction box 1, said spring element 33 vertex portion 331 engages the lateral edge of the junction box 1 portal 11, thereby 10 securing the lamp rod 3A onto the junction box 1 portal 11.

Configuring the lamp rods 3A and the junction box 1 in a hinged state provides for the rotation of the lamp rods 3A via the joint sections R1 and R2 as well as the adjustment of the lamp rod 3A and junction box 1 angle, enabling the posturing of the lamp rods 3A into a parallel arrangement to thereby reduce the 15 overall space occupied by the lamp rods 3A and the junction box 1 when they are shipped.